217/782-2113

REVISED
FEDERALLY ENFORCEABLE STATE OPERATING PERMIT

PERMITTEE

Lonza Inc.
Attn: Robert E. Miller
U.S. Route 24
Mapleton, Illinois 61547

Application No: 72100888 I.D. No.: 143805AAW
Applicant's Designation: Date Received: August 10, 2001
Subject: Specialty Chemicals Manufacturing
Date Issued: November 8, 2001 Expiration Date: July 15, 2002
Location: U.S. Route 24, Mapleton

This permit is hereby granted to the above-designated Permittee to OPERATE emission source(s) and/or air pollution control equipment consisting of the equipment described in Attachment B, pursuant to the above-referenced application. This permit is subject to standard conditions attached hereto and the following special condition(s):

1a. This federally enforceable state operating permit is issued to limit the emissions of air pollutants from the source to less than major source thresholds (i.e., 10 tons/year of any single HAP or 25 tons/year of any combination of such HAPs and 100 tons/year of VOM). As a result, the source is excluded from the requirements to obtain a Clean Air Act Permit Program (CAAPP) permit. The maximum emissions of the source, as limited by the conditions of this permit, are described in Attachment A.

b. Prior to issuance, a draft of this permit has undergone a public notice and comment period.

c. This permit supersedes all permit(s) issued for this location.

2a. Production/throughput from the following processes/storage tanks which emit hydrochloric acid (HCl) shall not exceed the following limits:

Process/Storage Tank	Product	Production Limits (Lb/Mo)	(Lb/Yr)
Chlorination	Alkyl Chlorides	10,000,000	60,000,000
PCl_3 Storage Tanks (T-252 and T-254)	PCl_3	3,275,000*	19,650,000*
Unihibs Phosphonation	Unihibs	3,000,000	18,000,000
Unihibs Filtration	Unihibs	3,000,000	18,000,000
HCl Storage Tank (T-112)	HCl	278,000*	1,668,000*

* Throughput (not production).

b. Emissions of HCl from the following processes/storage tanks shall not exceed the following limits:

Process/Storage Tank	HCl Emissions (Tons/Mo)	(Tons/Yr)
Chlorination	0.630	3.800
PCl_3 Storage Tanks (T-252 and T-254)	0.006	0.050
Unihibs Phosphonation	0.700	4.200
Unihibs Filtration	0.0003	0.002
HCl Storage Tank (T-112)	0.0005	0.003
Fugitive Emissions	0.0120	0.070
Total:	1.3500	8.130

c. These limits are based on maximum production, material mass balance calculations, and AP-42 storage tank emission calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

3a. The Permittee shall maintain the scrubbers (C-240, S-695, and C-112) efficiency at a minimum of 99% control of HCl emissions.

b. Operation of the Chlorination Process, unloading of PCl_3 into the PCl_3 Storage Tanks (T-252 and T-254), operation of the Unihibs Phosphonation Process, operation of the Unihibs Filtration Process, and unloading of HCl into the HCl Storage Tank (T-112), shall not begin until the scrubbant has been introduced to the associated scrubbers (C-240, S-695, and C-112, respectively).

c. The scrubbant flow rate to scrubber (C-240) during operation of the Chlorination Process shall be at least 50 gallons/minute unless a deviation in this flow rate can achieve 99% control of HCl emissions. If a deviation is used to achieve 99% control, the Permittee must keep records of calculations justifying at least 99% control.

4a. Production/throughput from the following processes/storage tanks which emit volatile organic material (VOM) shall not exceed the following limits:

Process/Storage Tank	Product	Production Limits (Lb/Mo)	(Lb/Yr)
Chlorination Storage Tanks			
Product	Alkyl Chlorides	10,000,000	60,000,000
Raw Materials	Raw Materials (Excluding PCl_3)	8,855,000*	53,130,000
Amination (Total)	Amines	10,000,000	60,000,000
Amination Storage Tanks			
Product	Amines	10,000,000	60,000,000
Purchases	Amines	10,000,000	60,000,000
Drum Out Storage Tank	Drummed Amines/Quats	833,333	5,000,000
Benzyl Quats	Benzyl Quats	10,000,000	60,000,000

(Continued)

Process/Storage Tank	Product	Production Limits (Lb/Mo)	(Lb/Yr)
Methyl Quats	Methyl Quats	5,000,000	30,000,000
Quats Storage Tanks			
Product	Quats	21,670,000	130,000,000
Raw Materials	Raw Materials	6,666,667*	40,000,000*
Unihibs Storage Tanks			
Product	Unihibs	3,000,000	18,000,000
Raw Materials	Raw Materials	3,383,333*	20,300,000*
Evaporation (EV-506)	Amines (Feed Material)	4,866,667*	29,200,000*
Evaporation (EV-201)	Amines (Feed Material)	2,133,333*	12,800,000*
Distillation	Distilled Alkyl Chlorides/Amines	1,616,667*	9,700,000*
Amines Filtration	Amines/Quats	10,000,000*	60,000,000*
Amines Filtration Storage Tanks	Amines/Quats	10,000,000*	60,000,000*
Amines Belt Flaking	Flaked Product	300,000*	1,800,000*
Liquid Sorbitol Storage Tanks	Liquid Sorbitol	140,667,700	844,000,000

		Therms/Yr
Natural Gas-Fired Heaters	Natural Gas	700,800

* Throughput (not production).

b. Emissions of VOM from the following processes/storage tanks shall not exceed the following limits:

Process/Storage Tank	VOM Emissions (Tons/Mo)	(Tons/Yr)
Chlorination Storage Tanks	0.10	0.6
Amination	0.55	3.3
Amination Storage Tanks	1.00	6.0
Drum Out Storage Tank	0.07	0.4
Benzyl Quats	0.22	1.3
Methyl Quats	5.65	33.9
Quats/Raw Materials Storage Tanks	2.20	13.2
Unihibs/Raw Materials Storage Tanks	0.12	0.7
Evaporation (EV-506)	1.22	7.3
Evaporation (EV-201)	0.67	4.0
Distillation	2.30	13.8
Amines Filtration	0.10	0.6
Amines Filtration Storage Tanks	0.12	0.7
Amines Belt-Flaking	0.04	0.2
Liquid Sorbitol Storage Tanks	0.35	2.1
Natural Gas-Fired Heaters	0.05	0.3
Fugitive Emissions	0.07	0.4
Total:	14.83	88.8

c. These limits are based on maximum production, material mass balance calculations, and AP-42 storage tank emission calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

5. At all times, the Permittee shall, to the extent practicable, maintain and operate emission units in VOM service, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.

6a. The Permittee shall maintain records of the following items, and such other items as may be appropriate to allow the Illinois EPA to review compliance with the limits in this permit:

i. Production of Alkyl Chlorides (lb/mo and lb/yr);

ii. Throughput of PCl_3 in the PCl_3 Storage Tanks (T-252 and T-254) (lb/mo and lb/yr);

iii. Production of Unihibs (Phosphonation and Filtration) (lb/mo and lb/yr);

iv. Throughput of HCl in the HCl Storage Tank (T-112) (lb/mo and lb/yr;

v. Production of Methyl Quats (lb/mo and lb/yr);

vi. Production of Benzyl Quats (lb/mo and lb/yr);

vii. Throughput of Raw Materials in the Quats Storage Tanks (lb/mo and lb/yr);

viii. Throughput of Distilled Alkyl Chlorides/Amines (lb/mo and lb/yr); and

ix. Natural gas fuel usage (therms/mo and therms/yr).

b. All records and logs required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA or USEPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA or USEPA request for records during the course of a source inspection.

7. If there is an exceedance of the requirements of this permit as determined by the records required by this permit, the Permittee shall submit a report to the Illinois EPA=s Compliance Section in Springfield, Illinois within 30 days after the exceedance. The report shall include the emissions released in accordance with the recordkeeping requirements, a copy of the relevant records, and a

description of the exceedances or violation and efforts to reduce emissions and future occurrences.

8. Emissions of particulate matter from the following emission units shall not exceed the following limits:

Emission Unit	PM Emissions (Tons/Yr)
Unihibs Filtration	0.44
Amines Filtration	0.05
Sorbitol Evaporation and Crystallization	1.00
Natural Gas-Fired Heaters	0.40

These limits are based on maximum production, material mass balance calculations, and storage tank emission calculations.

9a. Operation of and emissions from the natural-gas fired heaters shall not exceed the following limits:

Item of Equipment	Fuel Usage (Unit/Yr)	Emission Factor (lb/mmscf)	Pollutant	Emissions (Tons/Yr)
Heaters	700.8*	100.0	NO_x	3.50
		84.0	CO	2.94
		0.6	SO_2	0.02
		7.6	PM	0.27
		5.5	VOM	0.19

* Fuel usage units = 1,000 therms; Conversion = 10,000 therms/mmscf.

b. These limits are based on maximum fuel consumption, maximum firing rates, and standard AP-42 Emission Factors.

c. Natural gas shall be the only fuel fired in the above mentioned heaters.

10. Two (2) copies of required reports and notifications concerning equipment operation on repairs, performance testing or a continuous monitoring system shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

and one (1) copy shall be sent to the Illinois EPA=s regional office at the following address unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
5415 North University
Peoria, Illinois 61614

11a. The Permittee shall submit the following additional information with the Annual Emissions Report, due May 1st of each year:

i. Production of Alkyl Chlorides (lb/mo and lb/yr);

ii. Throughput of PCl_3 in the PCl_3 Storage Tanks (T-252 and T-254) (lb/mo and lb/yr);

iii. Production of Unihibs (Phosphonation and Filtration) (lb/mo and lb/yr);

iv. Throughput of HCl in the HCl Storage Tank (T-112) (lb/mo and lb/yr);

v. Production of Methyl Quats (lb/mo and lb/yr);

vi. Production of Benzyl Quats (lb/mo and lb/yr);

vii. Throughput of Raw Materials in the Quats Storage Tanks (lb/mo and lb/yr);

viii. Throughput of Distilled Alkyl Chlorides/Amines (lb/mo and lb/yr); and

ix. Natural gas fuel usage (therms/mo and therms/yr).

b. If there have been no exceedances during the prior calendar year, the Annual Emissions Report shall include a statement to that effect.

Please note that this permit has incorporated the additional Amination process from Construction Permit 01080024 with no increase in emissions.

If you have any questions on this, please call Eric Jones at 217-782-2113.

Donald E. Sutton, P.E.
Manager, Permit Section
Division of Air Pollution Control

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cc: Illinois EPA, FOS Region 2
Illinois EPA, Compliance Section
Lotus Notes

Attachment A - Emission Summary

This attachment provides a summary of the maximum emissions from this specialty chemicals manufacturing plant operating in compliance with the requirements of this federally enforceable permit. In preparing this summary, the Illinois EPA used the annual operating scenario which results in maximum emissions from such a plant. This is a maximum production as set forth below. The resulting maximum emissions are well below the levels, e.g., 10 tons/year of any single HAP or 25 tons/year of any combination of such HAPs and 100 tons/year of VOM, at which this source would be considered a major source for purposes of the Clean Air Act Permit Program. Actual emissions from this source will be significantly less than predicted in this summary, to the extent that actual production/throughput (of worst-case raw materials/products) is less than required in this permit, and control measures are more effective than required in this permit.

1. HAP Emissions

Process/Storage Tank	Product	Production Limits (Lb/Mo)	Production Limits (Lb/Yr)	HAPs Emitted	HAP Emissions (Ton/Mo)	HAP Emissions (Ton/Yr)
Chlorination	Alkyl Chlorides	10,000,000	60,000,000	HCl	0.63	3.8
PCl_3 Storage Tanks	PCl_3	3,275,000	19,650,000*	HCl	0.008	0.05
Benzyl Quats	Benzyl Quats	10,000,000	60,000,000	BeCl	0.0007	0.004
				MeOH	0.017	0.1
Methyl Quats	Methyl Quats	5,000,000	30,000,000	MeCl	0.48	2.88
				MeOH	0.017	0.1
Quats Storage Tanks	Raw Materials	6,666,667*	130,000,000	BeCl	0.015	0.09
				MeCl	0.078	0.47
				MeOH	0.017	0.1
Unihibs Phosphonation	Unihibs	3,000,000	18,000,000	HC1	0.7	4.2
Unihibs Storage Tanks	Raw Materials	5,712,000*	34,300,000*	Formaldehyde	0.013	0.08
Unihibs Filtration	Unihibs	3,000,000	18,000,000	HCl	0.0003	0.002
HCl Storage Tank	HCl	278,000	1,668,000	HCl	0.0005	0.003
Fugitive Emissions	NA	NA	NA	HCl	0.0117	0.07
				Total HAPs	1.99	11.95

* Throughput (not production).

These limits are based on maximum production, material mass balance calculations, and AP-42 storage tank emission calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

2. HCl Emissions

Process/Storage Tank	Product	Production Limits (Lb/Mo)	Production Limits (Lb/Yr)	HCl Emissions (Ton/Mo)	HCl Emissions (Ton/Yr)
Chlorination	Alkyl Chlorides	10,000,000	60,000,000	0.63	3.8
PCl_3 Storage Tanks (T-252 and T-254)	PCl_3	3,275,000*	19,650,000*	0.008	0.05
Unihibs Phosphonation	Unihibs	3,000,000	18,000,000	0.7	4.2
Unihibs Filtration	Unihibs	3,000,000	18,000,000	0.0003	0.002
HCl Storage Tank (T-112)	HCl	278,000*	1,668,000*	0.0005	0.003
Fugitive Emissions	HCl	NA	NA	0.0117	0.07
			TOTAL:	1.35	8.13

* Throughput (not production).

These limits are based on maximum production, material mass balance calculations, and AP-42 storage tank emission calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

3. VOM Emissions

Process/Storage Tank	Product	Production Limits (Lb/Mo)	Production Limits (Lb/Yr)	VOM Emissions (Ton/Mo)	VOM Emissions (Ton/Yr)
Chlorination Storage Tanks				0.1	0.6
Product	Alkyl Chlorides	10,000,000	60,000,000		
Raw Materials	Raw Materials (Excluding PCl_3)	8,855,000	53,130,000*		
Amination (Total)	Amines	10,000,000	60,000,000	0.55	3.3
Amination Storage Tanks				1.0	6.0
Product	Amines	10,000,000	60,000,000		
Purchases	Amines	10,000,000	60,000,000		
Drum Out Storage Tank	Drummed Amines/Quats	833,333	5,000,000	0.07	0.4
Benzyl Quats	Benzyl Quats	10,000,000	60,000,000	0.22	1.3
Methyl Quats	Methyl Quats	5,000,000	30,000,000	5.65	33.9
Quats Storage Tanks				2.20	13.2
Product	Quats	21,670,000	130,000,000		
Raw Materials	Raw Materials	6,666,667*	40,000,000*		

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Process/Storage Tank	Product	Production Limits (Lb/Mo)	Production Limits (Lb/Yr)	VOM Emissions (Ton/Mo)	VOM Emissions (Ton/Yr)
Unihibs Storage Tanks				0.117	0.7
Product	Unihibs	3,000,000	18,000,000		
Raw Materials	Raw Materials	3,383,333	20,300,000*		
Evaporation (EV-506)	Amines (Feed Material)	4,866,667*	29,200,000*	1.22	7.3
Evaporation (EV-201)	Amines (Feed Material)	2,133,333*	12,800,000*	0.67	4.0
Distillation	Distilled Alkyl Chlorides/Amines	1,616,667*	9,700,000*	2.3	13.8
Amines Filtration	Amines/Quats	10,000,000*	60,000,000*	0.1	0.6
Amines Filtration Storage Tanks	Amines/Quats	10,000,000	60,000,000*	0.12	0.7
Amines Belt Flaking	Flaked Product	300,000*	1,800,000*	0.04	0.2
Liquid Sorbitol Storage Tanks	Liquid Sorbitol	140,667,700	844,000,000	0.35	2.1
Fugitive Emissions	N/A			0.07	0.4
			Therms/Yr		
Natural Gas-Fired Heaters	Natural Gas		700,800	0.05	0.3
			TOTAL:	14.83	88.8

* Throughput (not production).

These limits are based on maximum production, material mass balance calculations, and AP-42 storage tank emission calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

4. Particulate Matter Emissions

Emission Unit	PM Emissions (Tons/Yr)
Unihibs Filtration	0.44
Amines Filtration	0.05
Sorbitol Evaporation and Crystallization	1.00
Natural Gas-Fired Heaters	0.40

These limits are based on maximum production and material mass balance calculations. Compliance with the annual limits shall be determined from a running total of 12 months of data.

5. Natural Gas-Fired Heaters

Item of Equipment	Fuel Usage (Unit/Yr)	Emission Factor (Lb/mmscf)	Pollutant	Emissions (Tons/Yr)
Heaters	700.8*	100.0	NO_x	3.50
		84.0	CO	2.94
		0.6	SO_2	0.02
		7.6	PM	0.27
		5.5	VOM	0.19

* Fuel usage units = 1,000 therms; Conversion = 10,000 therms/mmscf.

These limits are based on maximum fuel consumption, maximum firing rates, and standard AP-42 Emission Factors.

Attachment B - Equipment List

Equipment (by Process)

Chlorination
PCl_3 Storage Tanks (T-252 and T-254)
Unihibs Phosphonation
Unihibs Filtration
HCl Storage Tank (T-112)
Amination
Amination Storage Tanks
Direct Amination Process Consisting of a Monomethylamine Storage Tank (30,000 Gallon), Reactor (R-560) Controlled by 2 Condensors and PTS System, Catalyst Filter, 2 Demister Units, Gravity Settler, Overflow Tank, Holding Tank, and Scrubber Tank Controlled by Column Scrubber
Drum Out Storage Tank
Benzyl Quats
Methyl Quats
Quats Storage Tanks
Unihibs Storage Tanks
Evaporation (EV-506)
Evaporation (EV-201)
Distillation
Amines Filtration
Amines Filtration Storage Tanks
Amines Belt Flaking
Liquid Sorbitol Process and Storage Tanks
Natural Gas-Fired Heaters
Sorbitol Evaporation and Crystallization
Fugitive Emissions

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